




SARS-CoV-2 viral load data

PLOS BIOLOGY

Viral dynamics of acute SARS-CoV-2 infection and applications to diagnostic and public health strategies

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Viral Dynamics of SARS-CoV-2 Variants in Vaccinated and Unvaccinated Persons

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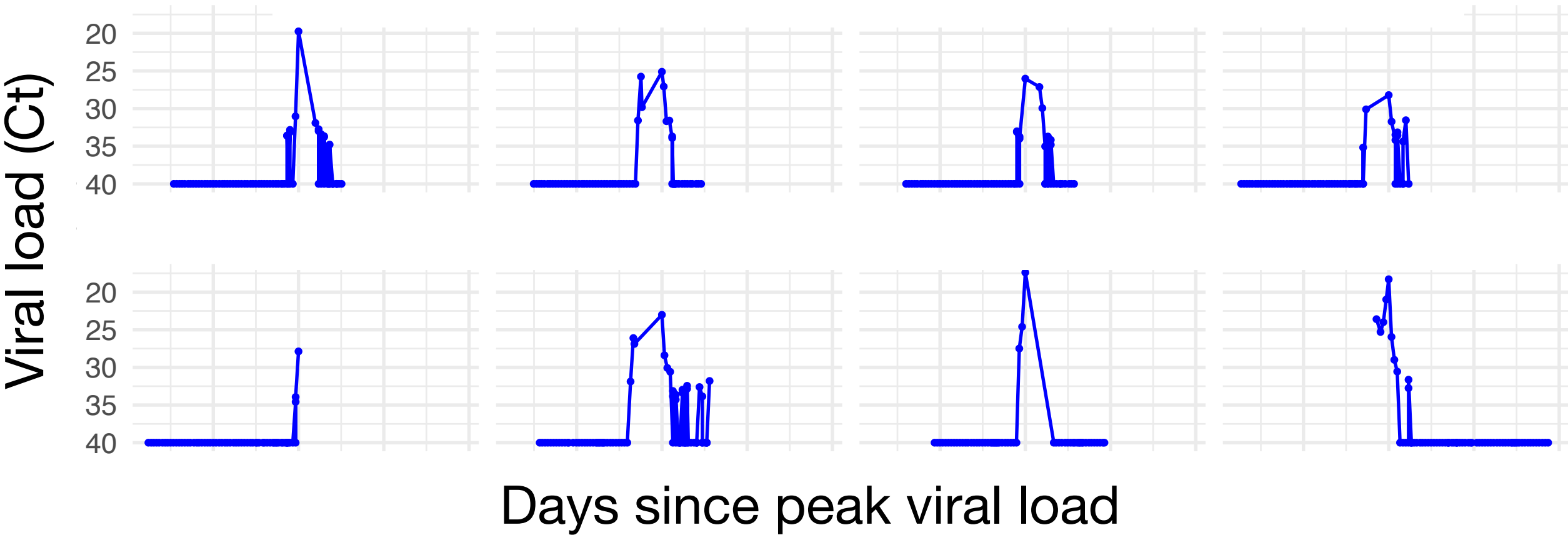
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The impact of immune history and variant on SARS-CoV-2 viral kinetics and infection rebound

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- Frequent (~daily), prospective (not triggered by symptoms) combined anterior nasal and oropharyngeal swabs
- Participants in the NBA occupational health program: players, staff, vendors, and family members
- Ct values measured by Roche cobas Target 1
- Conversion from Ct to log10 RNA copies/ml calculated using a standard curve
- Samples sequenced by colleagues at Tempus; analysis led by Joseph Fauver and Nathan Grubaugh



A model for SARS-CoV-2 viral kinetics

$$\frac{dT}{dt} = -\beta VT - \Phi IT + \rho R$$

$$\frac{dR}{dt} = \Phi IT - \rho R$$

$$\frac{dE}{dt} = \beta VT - kE$$

$$\frac{dI}{dt} = kE - \delta I$$

$$\frac{dV}{dt} = \pi I - cV,$$

Ke *et al.* (2021), PNAS

